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2 August 1979

# Worldwide Report

## ENVIRONMENTAL QUALITY

No. 220

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# WORLDWIDE REPORT

## ENVIRONMENTAL QUALITY

No. 220

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WEST EUROPE

GREECE

## BRIEFS

MOVE AGAINST RIVER POLLUTION--Senator D. McClelland (Lab, NSW) gave notice [in Parliament] that he will move today to stop what he claims is pollution of the Georges River by the Holsworthy defence establishments and Bankstown aerodrome. The level of effluent discharged from these two sources had been shown to be above the level set in the NSW Clean Waters Act. He said this was revealed in answers given by the Minister for Science and Environment, Senator Webster, at the beginning of this month. [Excerpt] [Sydney THE SYDNEY MORNING HERALD in English 24 May 79 p 11]

NORTH COAST RAIN FOREST--Conservation groups fighting to keep sawmillers out of the Terania Creek Basin rain forest on NSW's north coast believe they may have won a major victory in their four-year campaign. A spokesman for the NSW Minister for Conservation and Water Resources, Mr. Gordon, who is inspecting the region today, said the "hue and cry" generated by the proposed logging had made it clear there was "an issue." Terania rain forest, about 30 kim north of Lismore, is one of the few remaining lowland subtropical rain forests in NSW. [Excerpt] [Canberra THE AUSTRALIAN in English 23 May 79 p 3]

CSO: 5000

## FIRST NATIONAL MEETING ON AIR POLLUTION CONTROL HELD

Beijing XINHUA in English 0150 GMT 12 Jul 79 OW

[Text] Shenyang, 12 Jul (XINHUA)--The reduction of airborne pollutants in some 20 major industrial cities in China emerged as a priority at a recent national meeting on air pollution control, held here from 19 June to 5 July. The conference, the first of its kind, was attended by 222 scientists from a dozen branches of science, who presented 61 papers on pollution monitoring and control.

Participants emphasized that the elimination of sulfur dioxide, dust, metal oxides and other toxic substances that pollute the air of Beijing, Shanghai, Tianjin and other cities should be the focus of China's environmental work. During the meeting, the city of Shenyang's preliminary program for air pollution control was discussed as a practical model.

Shenyang used to be a seriously polluted industrial city. But in the past six years, more than one third of the city's 6,000 boilers and furnaces have switched from coal to gas fuel, installed dust absorbers and adopted other technical measures to reduce air pollution. As a result, black smoke problems are basically under control, and large quantities of coal have been saved as well.

Two large new projects undertaken in Shenyang this year are aimed at further minimizing the use of coal. A coal gasification works is being built that will convert abundant low-quality lignite into gas, and a power plant in the area is being expanded to provide steam for industrial enterprises for both heating and cooling purposes. With the completion of the two projects, factories in the city should save about one million tons of coal annually and over 90 percent of the city dwellers will use gas as cooking fuel.

Conference participants also called for greater efforts in scientific training, importation and adoption of advanced technology from abroad and better coordination among scientific disciplines that are important in environmental protection work.

CSO: 5000

CONFERENCE ON POLLUTION CONTROL IN SONGHUA RIVER

Beijing XINHUA in English 0242 GMT 6 Jul 79 OW

[Text] Harbin, 6 Jul (XINHUA)--Along the Songhua River, a major water system in northeast China, 13 factories have reduced the amount of the waste water they discharge into the river. This waste contains phenol, cyanide, mercury and chromium. Measures taken since last year were made public at the second conference convened here on the protection of the Songhua River water system.

The installations for the treatment of waste water containing phenol, cyanide and mercury from the Jilin calcium carbide factory have been built and have gone into operation. An installation that will treat waste water containing phenol from the Changchun No. 1 Motor Vehicle Plant will soon be in operation, while Harbin's Northeast Light Alloy Processing Plant is retrieving chromic anhydride from its waste water and bringing the water up to discharging standard. Harbin Yinguang Electro-plating Factory is now successfully recycling its waste water containing chromium.

These 13 enterprises were among 61 enterprises that were ordered to prevent and control pollution within a specified period of time at the first conference on the Songhua water system which was held in Jilin in June last year.

At that conference delegates made plans to achieve by 1980 marked improvement in the water quality of the seriously polluted Songhua River and restoration of the river to its original state by 1985.

Since last year environmental protection departments of Jilin and Heilongjiang provinces, with the assistance of colleges and scientific research institutes, have investigated the polluted state of the Songhua River and the pollution trends, as well as the damage to health, agriculture and aquatic life caused by the pollutants.

The 1,840-kilometre Songhua River has dozens of tributaries, which flow through Jilin and Heilongjiang provinces.

Jilin, Changchun, Harbin and Jiamusi in the Songhua River basin are major industrial cities. With the development of industries, factories are discharging more and more waste water and slags. Today the Songhua River water system takes 6 million tons of industrial waste water a day. The waste water contains lead, copper, chromium, oil, fibres and amino compounds as well as other harmful materials.

In 1978 the state listed the Songhua water system as one of the key areas to control pollution within three to five years.

At the recent conference delegates criticized those factories which had not taken effective measures to prevent and control pollution and ordered another 43 factories and enterprises to bring pollution under control by the end of 1981. If they fail to fulfil this task by that time, they are to stop production.

The conference said that all newly-built projects, or those being rebuilt or expanded along the Songhua River, should have pollution control installations built into them.

CSO: 5000

JILIN DAILY DISCUSSES POLLUTION PROBLEMS

Changchun Jilin Provincial Service in Mandarin 2200 GMT 27 Jun 77 SK

[Report on JILIN RIBAO 28 June editorial: "Push Forward Environmental Protection in the Course of Readjusting the National Economy"]

[Excerpts] The editorial says: Our party and state have always paid attention to environmental protection and have taken a series of measures to strengthen this work. However, because of the serious sabotage by Lin Biao and the "gang of four" and the lack of adequate understanding of the importance of environmental protection on the part of some of our comrades, there are many things yet to be done in our province. This has caused harm to our industry, agriculture, animal husbandry, fisheries and especially the health of our people.

Presently, some comrades are afraid of the difficulties in controlling pollution and protecting the environment, though they are aware of the problem of pollution and its harmful effects. In their opinion, waste gases, liquids and [word indistinct] are results of industrial development, and environmental pollution is inevitable. They hold that there are too many problems concerning environmental pollution to be resolved. However, the experiences of advanced units in environmental protection in our province has eloquently proven that with the wise leadership of the party Central Committee, the superior socialist system and the support of the broad masses of people, we are surely able to achieve quicker and better results than capitalist countries in solving the public hazard problem as long as we make persistent and unremitting efforts to do so.

On the question of how to push forward environmental protection, the editorial points out: Generally speaking, it is necessary to solve pollution problems radically. A scientific environmental protection system should be established for the purpose of overall protection of the environment. First of all, we should do away with the wrong practice of developing industries first and controlling pollution later. That is, we should by no means create new pollution problems in all new projects and all expansion and renovation projects, waste disposal

installations and main production equipment should be designed, erected and put into operation at the same time. If this requirement is not met, no project should be built and put into operation.

On the other hand, many existing enterprises are the main sources of pollution at present. In accordance with the principle of those causing pollution being responsible for controlling it, plans should be formulated to have these enterprises solve the problems before a certain deadline.

In conclusion, the JILIN RIBAO editorial states: Pollution control and environmental protection is a major part of the 3-year economic readjustment work and the program of the four modernizations. It is a matter of prime importance concerning the people's health and the well-being of our posterity. Leaders at all levels must pay great attention to this matter, strengthen their leadership and make unified planning. They must earnestly mobilize the masses and adopt resolute measures to do the work well, make periodic checkups on how the measures are implemented, and bring the work into the scope of the management of the national economy so as to make environmental protection a real success. Above all, the pollution problems of the Dier Songhua River and other contaminated waters must be well solved within the expected time limit.

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## BRIEFS

ZHEJIANG RAILWAYS REDUCE POLLUTION--The rolling stock section of the Hangzhou railway subbureau has scored initial success in controlling industrial wastes and reducing pollution. Measures have been taken to eliminate smoke and utilize waste gases and liquids. Now the more than 10 smokestacks in the rolling stock section have basically stopped emitting smoke, and the soot recovered has been used as fuel, saving coal consumption by about 20 percent. The rolling stock section has also planted more than 8,000 trees in the past year to improve the environment. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 20 May 79 OW]

TIANJIN WATER POLLUTION CONFERENCE--Recently, the Environmental Protection Office of Tianjin Municipal Revolutionary Committee and (Jiyuanhe) River Water Resource Protection Office jointly called a scientific research work conference on preventing and controlling pollution in the Bohai Sea, Yellow Sea and (Jiyuanhe) River. The conference conveyed and carried forward the spirit of the State Council's relevant documents, summed up the results of the scientific research work for 1978 on preventing and controlling pollution in these bodies of water and implemented a new scientific research plan. Eighty-eight representatives of the municipal public health bureau, Nankai University, Tianjin University, the Environmental Protection Office of the State Council, Chinese Academy of Sciences, the State Oceanography Bureau and other units concerned participated. Nineteen reports were made by 14 units and a new work plan was studied and formulated in light of the concrete conditions of the respective units. [Tianjin City Service in Mandarin 1230 GMT 29 May 79 HK]

HUNAN RIVER POLLUTION--Changsha, 7 Jun--Water in the Xiangjiang River, the longest in central China's Hunan Province, will be restored to its natural condition of purity before the year 1983. This decision has been taken as part of a program for the protection of the Xianjiang River water adopted at the first meeting of a committee set up to promote research into pollution in the river, and to take steps to reduce it. It is 856 kilometres long and has a valley of 94,660 square kilometres. Last year, the state listed the Xianjiang Valley one of the

major water areas to be protected and controlled. And the Committee for the Protection of the River System was set up last February. This year's work will stress the investigation of major pollution sources and damage to water plants and aquatic animals over the section between Changsha and Zuzhou, two of the major cities in Hunan. [Beijing XINHUA in English 0821 GMT 7 Jun 79 OW]

SUMMER HYGIENE CAMPAIGN UNDERWAY--Beijing, 14 Jun (XINHUA)--A summer hygiene campaign to clean up the cities and improve public health and environment is underway, as temperature rises above 30 degrees C even in the cooler north. Factories, schools, hospitals, public canteens, vegetable sellers and neighbourhood committees will all check their standard of hygiene against the publicised requirements. Special attention is paid to food and water supply, both in city and suburbs. In Beijing, regular sprinkling of insecticides is carried out to eliminate mosquitoes and flies. Strict hygienic demands are set for market fairs and grocery shops. In the industrial centre of Shanghai, students have volunteered to help and a citywide check up has started. District cleaning stations in the city cleared away 1600 tons of rubbish from 140 streets. In the port city of Tianjin, emphasis is on commercial institutions and disease prevention. [Text] [Beijing XINHUA in English 0956 GMT 14 Jun 79 OW]

XIZANG ARTIFICIAL RAIN--Since May of this year, drought has continued in Xizang region, causing tremendous hardships for agricultural production, livestock breeding and the people's livelihood. To combat drought the Lhasa municipal CCP and revolutionary committees conducted artificial rainmaking activities in the Lhasa area on 16 June. On 19 June, rain fell in Lhasa and other areas, eliminating the drought in Lhasa Municipality for the most part. Varying volumes of rain also fell in Quxu, Doilungdeqen, Gonggar and Dagze counties. [Lhasa Xizang Regional Service in Mandarin 1350 GMT 21 Jun 79 OW]

NORTHEAST ENVIRONMENTAL PROTECTION--The second meeting on environmental protection for the Songhuajiang River system held jointly by Jilin and Heilongjiang provinces concluded in Harbin on 12 June. Chen Jianfei, secretary of the Heilongjiang Provincial CCP Committee, and Song Jiehan, deputy secretary of the Jilin Provincial CCP Committee, delivered reports at the meeting. (Chen Xitian), deputy chief of the Office for Environmental Protection under the State Council, also spoke at the meeting. The meeting called on people in the two provinces to make concerted efforts to control and eliminate pollution in the waters of the Songhuajiang River system within 2 years. [Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 13 Jun 79 OW]

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CHAO PHRAYA RIVER ANTIPOLLUTION EFFORTS DISCUSSED

Bangkok SIAM RAT BUSINESS WEEKLY in Thai 30 Apr-6 May 79 pp 1, 4

[Article: "The Chao Phraya River Would Not Be Polluted If the Distilleries Acted According to the Agreement"]

> [Text] Three rivers for which there are controls on factories have no pollution. On the Chao Phraya the pollution comes from distilleries and other factories. If the new bidding additions on the distilleries is done according to the agreement limiting waste water, the pollution in the Chao Phraya would drop to 7.2 percent.

Mr Wira Susangkonkancha the deputy director of the Factories Department of the Ministry of Industry revealed to SIAM RAT BUSINESS WEEKLY that as concerns the problem of pollution in various rivers, the many rivers on which the factories are controlled appear not to have pollution problems, for example, the Mae Khong River, the Petchburi River, and the Pranburi River. Therefore, the big factories along these three rivers are not having problems because we successfully control them. Also, surveys show that during various holidays such as Chinese New Year and the Thai New Year, there is no pollution because many factories are closed. This causes the water of the rivers mentioned to improve.

The deputy director of the Factories Department also said that there are a total of about 808 factories which release waste into the Chao Phraya River. When the condition of the river water is examined, it can be seen that it is waste water from 28.8 percent of the factories which is causing pollution. Of this, two factories together cause about 21.6 percent of the pollution in the Chao Phraya. If the Mae Khong factory could be taken out or if improvements could be made in limiting pollution with new agreements, pollution in the Chao Phraya would be reduced to about 7.2 percent or might be eliminated entirely.

Reporters asked about the Mae Khong factory which will be added to. Was there any talk of the problem of pollution in the Chao Phraya or not?

Mr Wira later said that the distilleries were an old problem; the agreements were old and did not limit waste water. The law could do nothing. The closer it comes to the end of the agreement the less likely it is for there to be improvement. On the contrary, they request to dump the liquor waste beyond the sand bar as a solution to the problem until bids can be submitted with new owners. After the new bidding on the distilleries, the agreement will have to be kept as far as waste water; there will be no dumping in the Chao Phraya. It is known that there is now bidding on the distilleries. This was caused by the need to correct the wastewater system, which will cost 100 million baht, according to Mr Wira.

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## BRIEFS

WATER COOPERATION WITH USSR--On 22 June Vice Premier Kazimierz Secomski received Ivan Borodavchenko, plenipotentiary of the USSR Government for water control in border areas, including joint measures to insure the rational management of border rivers, to protect these rivers against pollution and to safeguard border areas against floods. [Warsaw TRYBUNA LUDU in Polish 23-24 Jun 79 p 2 AU]

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## BRIEFS

ENVIRONMENTAL PROTECTION MEETING--[BTA report: "At the National Assembly"] On 4 July at 1000 local time there will be a session of the Permanent Committee on Environmental Protection with the participation of the Council on Environment Protection attached to the State Council. The session will discuss a report on the results of the implementation of environmental protection measures during the first 3 years of the 5-year plan period and a report on the socioecological conditions and requirements in connection with the protection and improvement of Sofia city and the environment of the Sofia conurbation system. [Text] [Sofia RABOTNICHESKO DELO in Bulgarian 30 Jun 79 p 3 AU]

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## AUTHORITIES TO TAKE MEASURES TO COUNTER OILSPILL IN GULF

### Emergency Measures

Mexico City International Service in Spanish 0030 GMT 16 Jun 79 PA

[Text] Experts from Mexican Petroleum, the Department of Fisheries and the Undersecretariat of Environmental Improvement have agreed to take emergency measures to clean up the crude which is escaping into the Gulf of Mexico from the Ixtoc Uno well and threatening to leak into the fish hatchery at Terminos lagoon. According to the Marine Research Department of the National Autonomous University of Mexico, the spill is already 30 miles from the hatchery. Jorge Ledesma, president of the fisherman's cooperative of Ciudad del Carmen, Campeche State, said that it is impossible to fish for 70 miles along the coast and 45 miles offshore because of the spill. However, he said that 455 fishing boats are working arduously in the northern and northeastern sectors.

### PEMEX on Control of Spill

PA241959 Buenos Aires LATIN in Spanish 0419 GMT 16 Jun 79 PA

[Text] Mexico City, 15 Jun (LATIN)--A spokesman of the state-owned Mexican Petroleum [PEMEX] today reported that the 640-square-mile oil spill that occurred in the Gulf of Mexico after an offshore drilling platform exploded has been controlled. A group of foreign experts including Red Adair started to work Monday to stop the spread of oil from the platform, located a few miles off Mexico's northeastern coast. The spokesman said the oil was prevented from spreading by the use of floating barriers and that most of the oil was being pumped into a tanker. The rest of the oil was dissolved with chemicals dropped from planes, the spokesman added. The well, located in the Gulf of Campeche, 30 km northeast of Cidudad del Carmen, caught on fire 12 days ago. The fire caused daily loss of more than 30,000 barrels of oil valued at approximately $1 million.

### Movement Towards Caribbean

PA242330 Paris AFP in Spanish 1848 GMT 24 Jun 79 PA

[Text] Mexico City, 24 Jun (AFP)--According to the newspaper UNO MAS UNO, the oil spilled in the Gulf of Mexico 20 days ago, due to a fire in the offshore well Ixtoc Uno, has changed its course and is now heading toward the Caribbean. The oil was originally headed toward Mexico's southeastern coast. However, in view of changes in sea currents in the gulf, the spilled oil is now heading out to sea. According to UNO MAS UNO, Mexican Petroleum [PEMEX] has not yet determined the dangers involved now that the oil is moving away from the coast.

According to speculation described here as alarmist, the black oil slick--comprising 600,000 barrels of oil spilled over the past 20 days by the well that burned--may reach the coasts of some Caribbean islands because of the northeastern course it has taken. However, experts believe that this is a remote possibility because, before the oil reaches any island, it would have dispersed to such an extent that it would not affect fauna in the Caribbean islands. The fear that the spill--which so far has been kept under control by PEMEX technicians--will spread is based on the fact that a hurricane is expected. Hurricanes occur very frequently in this area during the summer.

However, if the hurricane should cause the oil spill to spread, Mexico would be the only country that would be affected, since all the oil would move toward its coast. Meanwhile, efforts to put out the fire and stop the spill at the well are continuing. It is expected that a safety valve in the seabed of the gulf will be closed today, thereby capping the well. If the oil spill cannot be stopped in this manner, it will be necessary to await completion of a parallel well on which drilling began the day following the disaster. It is estimated that completion of this well will take at least 2 months.

So far, it has been possible to reduce the amount of crude being spilled. Originally, 30,000 barrels a day were being lost--15,000 were being burned and an equal amount was being spilled into the sea. At present, 15,000 barrels a day are being spilled, with over one-half of this amount being burned.

## Rejection of Sabotage Possibility

PA250050 Madrid EFE in Spanish 0229 GMT 14 Jun 79 PA

[Excerpts] Mexico City, 13 Jun (EFE)--The attorney general's office of the republic has discarded the possibility of sabotage in the case of the submarine oilwell which is now burning in the Gulf of Campeche. Initial investigations have demonstrated that the blow-out was accidental, said Attorney General Oscar Flores Sanchez in a report published today in Mexico City. The oilwell, Ixtoc Uno, located 94 km off the coast of Ciudad del Carmen, in southeastern Mexico, went out of control on 3 June due to a technical failure. Mexican Petroleum [PEMEX], the state enterprise which controls the exploitation of oil, reported the case to the attorney general as a routine legal requirement for all accidents. The attorney general said that the investigations indicate that the valves used on the well will withstand 1,000 lbs of pressure and that the well pressure rose to 10,000 lbs, which caused the accident. PEMEX said that the spilled oil will be cleaned up in the next few days, after it is isolated with huge plastic barriers. PEMEX is working to close the well's valves and is drilling two other wells to lower the pressure in order to control the spill.

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OIL FROM OFFSHORE WELL REACHES VERACRUZ, TAMPICO

PA262253 Madrid EFE in Spanish 2047 GMT 26 Jun 79 PA

[Text] Mexico City, 26 Jun (EFE)--Some oil from the spill at the Ixtoc 1 well in the Gulf of Campeche reached the coast at Veracruz and Tampico today. The slicks were located by the office of studies of the national territory. It is belived they will reach Galveston, Texas, in about 2 weeks, according to researchers from the Center of Sea Sciences at the National University. Representatives of PEMEX say the currents in the area are hindering efforts to control the well, where 30,000 barrels of oil have been escaping daily since early in the month.

The main oil slick so far is 13 km wide and 130 km long. PEMEX' efforts to control it have only managed to dilute the slick in certain areas, while the currents are causing it to spread. PEMEX managed to close the well's safety valves, but a fissure in the seabed Sunday thwarted the operation, which is now being repeated. Ixtoc 1 was damaged on Sunday, 3 June, when it began to burn. It is located off Ciudad del Carmen, 1,300 km southeast of the capital.

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## BRIEFS

SEWAGE PROJECTS--Baghdad, 26 Jun--The Public Corporation for Water and Sewage Contracting contracted in the first half of this year for five sewage projects at a cost of 76.7 million dinars to be distributed throughout the nation. The projects, the execution of which comprise this year's plan for the corporation, include the sewage systems of al-Thawrah, al-Diwaniyah, Karbala', and the principle comprehensive sewage system for the governorate of Baghdad. [Excerpt] [Baghdad AL-JUMHURIYAH in Arabic 26 Jun 79 p 4]

CSO: 5000

INVESTIGATION OF ITEZHI-TEZHI DAM PLANNED

Lusaka TIMES OF ZAMBIA in English 16 Jul 79 p 1

[Text]

THE Zambia Electricity Supply Corporation (ZESCO) is to investigate reports that its multi-million Kwacha Itezhi-Tezhi dam in Namwala is flooding the area wreaking havoc to human life and property.

ZESCO general manager, Mr Abel Mkandawire, said yesterday that he would personally go to Monze and Namwala this week to investigate complaints about the floods from the dam.

In Monze, local people have blamed the death of 22 people who drowned in Nampongwe river last Tuesday on the floods.

The people drowned in the river which has been flooded by water from the dam. Ten bodies have so far been recovered, according to police in Monze.

In Namwala and other surrounding areas, local leaders have complained that a lot of cattle had starved to death because the grazing areas were under water.

Some fishing camps had been submerged, they said.

But Mr Mkandawire said those complaining "do not understand the whole thing".

Claims that the dam had flooded many grazing areas and in some cases, people's huts,were not true, he said.

"The dam is there to regulate the flow of water in the Kafue river. If there was no dam, the area on each side of the river would have been inundated by floods," Mr Mkandawire pointed out.

"If I find that there is something definitely wrong with the dam, then we shall see if we can close the gates," the ZESCO chief said.

But Mr Mkandawire said the dam was only opened about three years ago and it would take his corporation about five to six years to know how to regulate it.

"At the moment, we do not know the phenomenon of the dam; that is, how to regulate it and when. We have to know exactly the dam's low and high water levels. This can take us five to six years," he said.

Mr Mkandawire promised to make a "reasonable and sound" statement after the tour.

Permanent secretary in the Ministry of Power, Transport and Communications, Mr Basil Monze, said:

"As far as I know, the boundary of the water flow was made at the time of constructing the dam and the water is flowing in that boundary."

The dam which was completed in October 1977, covers an area of some 370 square kilometres. It was intended to increase the electricity capacity of the country by 900 megawatts.

Several people in Southern Province have complained about the dam, claiming it had deprived them of enough grazing land for their cattle.

Last week, Namwala Member of Parliament, Mr Denis Zaloumis, appealed to ZESCO to temporarily close the gates at the dam to enable farmers in the area to move their animals to Kafue plains.

And Keembe Member of Parliament, Mr Robin Chivuno, said the dam was causing concern among people in his area.

"Before the dam was constructed we used to have a dry season from May to December, but this has since changed and water is everywhere throughout the year," he said.

Meanwhile, President Kaunda yesterday expressed great sadness and distress at the death of the 22 people who drowned in Nampongwe river.

In a message of condolence sent through the office of Southern Province member of the Central Committee, Dr Kaunda prayed for the quick recovery of those who had been rescued. He instructed the Party in the area to ensure that all necessary measures were taken to prevent a similar tragedy in the future.

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ENVIRONMENTAL SUCCESSES PLENTIFUL IN MOSCOW

LD270511 Moscow TASS in English 1227 GMT 26 Jun 79 LD

[Text] Moscow, June 26, TASS--The population of Moscow is annually increasing by 100,000 people, the number of automobiles in the capital is double the figure for ten years ago, yet the environment is cleaner than ever before. This has become possible thanks to the purposeful activity of the city authorities in creating a favourable environment for the Soviet capital. To restore the oxygen balance of the city at least 25 square metres of verdure are needed per Muscovite, yet the average figure now is 44 square metres. Of course, the purity of Moscow's air does not depend only on the level of greenery. The bulk of Moscow's enterprises now have highly effective dust-catching and gas-cleaning facilities, which annually retain up to 770,000 tons of harmful admixtures. The most unhygienic enterprises were liquidated, including 4,500 small boiler rooms. They were replaced by big gas-fueled heat and power plants.

Lorries are being gradually switched to liquified-gas fuel: Over 6,000 have already been re-equipped and the figure will be brought up to 15,000 by 1980. An experimental consignment of electromobiles were placed into service. The concentration of carbon monoxide is also to be lowered through the wholesale application of so-called neutralisers of exhaust gases.

The problem of filtering industrial and household sewage is being successfully solved. Filtering facilities have a daily capacity of over six million cubic meters of water, which is more than the city consumes. Over five million cubic metres of drinking water are daily used in Moscow. The second section of an industrial water main is under construction.

The cleaning of the bed of the Moskva River is drawing to a close. Within the city boundaries, bottom deposits are to be replaced by 5.5 million cubic metres of clean river sand. This job has not been completed but the fact that fish returned to Moskva River and that wild ducks settled on many lakes and ponds, is evidence of the efficiency of the steps taken.

CSO: 5000

# EVALUATION, NORMALIZATION AND PLANNING OF ENVIRONMENTAL QUALITY

Tallin KOMMUNIST ESTONII in Russian No 1, 1979 pp 31-35

[Article by T. Kallaste, graduate student at the Institute of Economics, Estonian Academy of Sciences: (Title as above)]

[Text] In "Basic Lines of Development of the USSR National Economy During the Period 1976-1980," adopted by the 25th CPSU Congress, improvement in the prediction of the effects of industry on the environment and due allowance for all possible consequences of the preparation and adoption of planning decisions are specifically called for.

Below are examined certain immediate problems in evaluating and normalizing environmental quality, in particular the adoption of essentially new standards for air and water protection, and the planning and prospects of environmental protection.

## General Principles of Evaluating and Normalizing Environmental Quality

Environmental studies have assumed a firm position in the national economy, particularly in the area of planning and predicting socioeconomic development. Environmental quality (purity of air, water and soil; noise and radiation, background and so forth) depends in ever-increasing degree on industrial production and transport and also on the social activity of man.

Just what is meant by environment and environmental quality?

Environment (medium of habitation, or natural medium) can be defined as the medium formed by all closely interconnected components of the biosphere--water, air, soil, the interior of the earth, and the flora and fauna.

All components of the environment supplement--and affect--one another. For example, substances in the atmosphere alter the composition of the water in reservoirs and in the soil, while processes taking place in reservoirs, in their turn, substantially affect the layers of air lying

above them. Thus, everything existing in nature is very strongly connected with everything else.

In addition, the components of the environment are the points of formation, accumulation, decomposition, transformation and dissemination of contaminants. Irradiation, vibrations and noise all arise and are distributed within those components. All these phenomena, taken together, are referred to as environmental contamination. Intensive development of industrial production leads to progressive environmental contamination, and it is therefore natural that the preservation of water, atmosphere and soil is receiving more and more attention. Environmental protection, in the narrower sense, can be defined as the anticontamination effort in general; and, in the broader sense, as the expedient utilization and preservation of all components of the biosphere. Thus, environmental preservation can be defined as the system of state and social measures called upon to guarantee effective utilization of natural resources along with the preservation and formation of landscapes and the preservation of the human habit and unique objects in nature.*

By the term "high-quality environment" we have come to understand the presence of pure water and air, a low level of noise and irradiation, and land surfaces which measure up to ecological principles. Thus, environmental quality can be defined as correspondence between the state of all the environmental components and certain assigned normative quantities which are characteristic of a clean, unpolluted medium as close as possible to the natural state.

Various essentially different criteria may serve as the basis of adoption of environmental quality norms; in character these may be a) hygienic, b) economic, c) ecological or d) composite. Up to now it is the hygienic criterion which has been most prominent in environmental quality normalization in the Soviet Union, and established norms are applied over the entire territory of the country. For example, we have established norms for permissible noise levels during day and night hours, intensity of magnetic and electric fields in populated areas, and permissible concentrations of various chemical compounds and substances in air and water. It should be noted that as early as the end of the 1940's the Soviet Union was the first country in the world to have established maximum norms for the concentration of harmful substances.

At the present time our system of hygienic norms embraces 145 different substances which may be found in the general atmosphere, more than 500 which may be found in working quarters, and some 300 which may be found in water.

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*See Kh. Luyk, "The Present Status and Problems of Environmental Protection in the Estonian SSR," KOMMUNIST ESTONII 1974, No 7, pp 68-76.

The current center for the establishment of norms is the Institute of General and Communal Hygiene imeni A. N. Sysin, which studies the effects of various chemical compounds on living organisms, and, on the basis of data thus obtained, develops norms for the maximal permissible concentrations (MPC) of those compounds. The term MPC should be interpreted to mean that concentration of a given chemical compound, which, upon daily exposure of the human subject over an extended period of time, produces neither pathological changes nor illnesses in the organism, and which does not disrupt the biological optimum for human beings. MPC serve as a scientific basis for establishing environmental protection norms. All other norms remaining in effect must be in accord with those particular indices.

According to data obtained by hygienists, a given research group will spend from 20 to 30 months in developing a single norm, the expense of this work running to as high as 25,000 rubles. We are dealing, therefore, with rather labor-consuming and expensive experiments.

As already pointed out, it is the hygienic criterion which underlies the establishment of existing and prospective norms for the near future. But this criterion is producing a good deal of dispute among economists. In the establishment of hygienic norms, the adopted concentrations of contaminants are not always sufficiently justified from the point of view of society as a whole. Unconditional adherence to overrigid norms may retard the development of the national economy, which, in its turn, will affect the well-being of society more adversely than would an above-norm concentration of an environmental contaminant.

The solution to this problem lies, first, in the amalgamation of the hygienic and economic forms of normalization, and later on the ecological form. It is presumed that norms constructed on such a basis would reflect both the requirements of hygiene and the conditions necessary for the normal functioning of natural associations. In addition, being sufficiently well justified from the point of view of the national economy, they would allow alternative economic solutions. Strict observance of norms established on such a comprheneisve base would cost society far less than would the future establishment of a natural environment deprived of its equilibrium.

Great efforts are being applied toward reduction in man's negative effect on his environment. For many years representatives of the most varied branches of science have been engaged in evaluating, normalizing and standardizing environmental quality. First of all we must have a set of universally accepted definitions--a state standard which, instead of existing MPC of invariable numerical value, would prescribe various norms differentiated on the basis of local regional conditions. The development of legally based runes and state standards for environmental protection is now being coordinated by the All-Union Scientific-Research Institute of Standardization.

Any simultaneous introduction of new norms throughout the country is naturally impossible. This would involve renunciation of a high rate of national economic development, as well as many ordinary advantages which are offered by an economically developed society. For example, in some of our industrially developed districts, environmental pollution already exceeds the corresponding sanitation norms. But the application of effective norms by establishing legal standards would lead to reduction in the rate of economic development, and so it is necessary to adopt a gradual transition from less rigid to more rigid requirements. In zones with a relatively unpolluted environment, it is even now necessary that we set up definitive norms, and implement them through state standards. Also, that in regions of unique character (such as state preserves) or increased social requirements (rest zones), we proceed at once to protection against the harmful effects of human (industrial) activity. From this arises the necessity of the assessment of regional peculiarities.

It follows from what has been said that the basic principles involved in the normalization of environmental quality must consist in 1) the gradual character of the introduction of norms, and 2) the regional adaptability of those norms.

In line with these requirements, state standards for the most general definitions, concepts, terms and classification principles for environmental quality have already been worked out and have been in effect since 1976. More detailed technical normalization at this moment is in the planning stage, and apparently some of the norms will attain the force of law even during the current year. In this stage, for example, are found emission norms established for industrial enterprises--that is, maximum permissible emission (MPE)* norms intended to supplement currently active immission norms (MPC)**. This subject will be dealt with in further detail below.

All confirmed norms must take into account the necessary environmental quality, since the principal problem facing normalization in this area consists in preserving a normal environment for present and future generations.

Now let us examine in somewhat greater detail the normalization of pollution of the two components of the biosphere--atmospheric air and water.

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* Emission is the release of pollutants into the environment by some pollutant source within a definite period of time.

** Immission is the accumulation of pollutants in the environment during the process of dispersion.

Evaluation and Normalization of Air Quality

Air is considered polluted if it contains more than the permissible content of substances not normally found in clean air, or if it shows either an extremely high or an extremely low content of ordinary atmospheric components. Air pollution depends to a great extent upon weather conditions--namely, humidity, temperature, solar radiation, wind direction, and the like. Depending on the physical properties of air, one will find variation in the activity, displacement capability and stability of the pollutants which it contains. Even after decomposition, deposition and scattering of pollutants, a certain quantity of these substances remains in the atmosphere, and it is this quantity which must serve as a basis for any estimation of air quality in terms of unit volume (similarly for water quality). This means that the currently active maximum permissible norms are expressed in the form of immission concentrations.

The following criteria for harmfulness of atmospheric pollutants have been formulated in the USSR:

1. A given air concentration of any substance is considered permissible only if it does not exert any direct or indirect harm on human beings, and does not reduce their efficiency or impair their mental state;

2. Habituation (adaptation) to harmful substances must be regarded as an unfavorable phenomenon, and as proof of the nonpermissible character of a given concentration; and

3. Concentrations of atmospheric pollutions must be regarded as nonpermissible which have an unfavorable effect on the vegetation or climate of a region, the atmospheric transparency, and the living conditions of human beings.

At the present time maximal permissible concentration norms for harmful substances in the atmosphere are in effect throughout the country; these were confirmed in 1975 by the deputy of the chief sanitary physician of the USSR. Depending on the time required for determination of the content of harmful substances, immission norms are established on the basis of one of two indices:

1. mean daily maximum permissible concentrations of harmful substances (mean content for 24 hours), and

2. maximum permissible concentrations for single tests (mean content for 30 minutes).

The main criterion is that of (1), the object of which is to assure that there will be no unfavorable effects from harmful substances as a result of prolonged resorptive action. Maximal single-test MPC are established for substances which have an odor or an irritating action.

In order to estimate and verify the quality of atmospheric air in any chosen period of time, it is necessary to determine the amount of pollutants per unit volume of air, and then compare this with the appropriate MPC's. Determination of a pollutant microquantity in air frequently calls for the use of high-precision methods, and this in turn requires a great deal of time, so that the process is difficult to automate. In addition, the presence of a number of different pollutants in the atmosphere of an industrial installation complicates the determination of which pollutant is most in excess of the MPC for a specific substance, and this is especially true if the pollution is of an episodic character.

It would be much simpler to establish maximum permissible emission (MPE) norms, which can be carefully calculated (with due allowance for the specific regional features) for use in a given locality. Such norms must assure a sufficient degree of air purity even under the most unfavorable weather conditions (fog, calms, inversions and the like). On the basis of local emission norms, experts determine for every enterprise in a given locality the maximum amounts of ejection for 24 hours. These are found by distributing the total emissions, either in correspondence with the maximum amount of pollution from a given source (production) and its degree of harmfulness, or from the fuel being used and the character of the technological processes. Since scattering of pollutants in the air is to a significant degree affected by meteorological factors, MPE norms also can be established on the basis of those factors.

Thus, the control and assessment of industrial emissions are much easier and less expensive than the measurement of already existing immission of pollutants and the identification of main sources of pollution on that basis.

Obviously, along with permanent monitoring of pollutant emission, we must maintain records of immissions in the future, since, as has already been noted, the comparison of factual pollutant concentration with given norms serves as a basis for sanitary-hygienic normalization. The use of MPE norms, however, has no significance outside of practical application. Any emission norms being set up must guarantee observance of the MPC for the corresponding contaminants--that is, they must guarantee the necessary purity of the air. In the introduction of MPE norms there would be a substantial reduction in the need for immission observations, the basic purpose of which would be episodic or continual control, and also in the need for regional verification of atmospheric condition.

Normalization of Water Quality

A roughly analogous situation is found in the case of evaluating and normalizing the contamination of reservoirs.

The concentration of pollutants in a reservoir depends upon the waste waters from industrial installations which use it, and upon the composition and quantity of those waters. Verification of the content of pollutants in water, if based only on immission and comparison with established MPC (as is done in the case of air), is a labor-consuming and relatively expensive enterprise. If several pollutants happen to be present, it is very difficult to ascertain which of them is directly responsible for exceeding the MPC in a given case, especially if occasional and emergency discharges occur; and for this reason it is expedient that every installation establish its own MPE. The necessary norms can be determined, for example, by means of acceptable distribution of tolerable total quantities of pollutants, depending on their harmful effects or on the degree of perfection of the technology being used. These norms can at the same time serve as a basis for establishing a standard of the enterprise and for imposing a penalty on the enterprise for any above-normal discharge of harmful substances.

At this moment the question of introducing MPE for various pollutants has been posed, and of doing this even in connection with individual technological installations, plant units and cycles. This would have the effect of simplifying the monitoring of emissions as a whole from an installation or production complex, and also simplifying the adoption of operative measures in the case of above-normal emergency discharge. In a word, a perceptible improvement in the sanitary-hygienic status of the environment in a specific locality would be achieved.

But another important problem arises in water quality evaluation. At the present moment a number of individual (local) MPC for pollutants are in use all over the country, and as a result of this misunderstandings arise in evaluating the sanitary-hygienic state of reservoirs found in entirely different natural conditions.

Immission norms for harmful substances must be carefully differentiated in correspondence with local conditions. The stability of chemical compounds and the change of state they undergo in a reservoir depends upon its predominant physicochemical indices (mineral composition, active reaction, temperature, microflora in the water, transparency of its layers and so forth). Consequently, the MPC of a particular substance cannot be identical for different natural conditions. In determining factual pollution of reservoirs it is necessary to take into account various physicochemical or biological changes (eutrophication of reservoirs, reduction in quantity of water, and so on) which should be established separately for every reservoir. At the same time, MPC for pollutants must remain flexible and rapidly changeable norms in case of necessity.

To extend the same norms or permissible deviations from them to all reservoirs is economically unjustifiable. The result of this is that in many reservoirs species of flora and fauna not native to those bodies of

water have begun to find protection there. As a result, the state has been expending considerable sums without securing any substantial effect. To avoid such a situation, in the case of reservoirs belonging to one basin or to others similar to it in their properties, it is expedient to establish maximum permissible concentrations of so-called critical pollutants, and also to purify waste water of such pollutants as a first step, and then, in correspondence with technical and economic possibilities and social requirements to remove the remaining, less critical compounds. The ultimate purpose of purification must be an ideal, absolutely pure water, but rather a water as close in composition as possible to the natural water of the given reservoir.

It is, of course, impossible to introduce at a strike and to the fullest extent the proposed variants of air and water quality norms, and to rigidly require their strict observance. However, we should not forget that the more remote purpose of establishing norms for the protection of the environment consists in the development and establishment of economically, hygienically and economically justified norms.

The Planning of Environmental Protection

The evaluation and normalization of environmental quality comprise the single base of planning measures which will guarantee a cleaner medium in which to live. The principal and most reliable route to this end consists in both short-term and long-term planning of those measures on the national scale and throughout the national economy.

The following basic objectives can be delineated in the planning of environmental protection:

prevention and elimination of influences which worsen the state of the environment;

restoration of the original balance of nature (where this is still possible); and

improvement in environmental quality through conscious transformation and purposeful regeneration of the restored national resources.

At the present time the planning of environmental protection has been introduced into the practice of national economic planning, and the principles set forth above have been considered in preparing the corresponding methodological directives. In those directives, in particular, it is stated that the principal purpose of this planning consists in a guarantee of a substantial reduction in the negative influence exerted on the natural environment by industrial enterprise, by agriculture, by transport, and by the municipal economy of cities; and that it is necessary to preserve and multiply the potential of natural resources throughout the country by means of their efficient utilization.

The first practical experience in the planning of environmental protection in the USSR dates from the beginning of the 1970's. In December 1972 the CPSU Central Committee and the USSR Council of Ministers took an appropriate decision. Since 1974 national economic plans take into account measures for environmental protection and the efficient utilization of national resources. Beginning with 1975 departments and enterprises have been preparing annual plans for measures in the utilization of land, waters and mineral resources, as an independent part of the overall national economic plan. Material and technical means, as well as labor resources, are allotted for the purpose of assuring the cleanness of the environment.

Article 18 of the USSR Constitution reads as follows: "In the interest of present and future generations in the USSR, the necessary measures shall be taken for the protection and the scientifically based, efficient utilization of the earth and its mineral wealth, flora and fauna; also, for the preservation of the purity of air and water, the guarantee of the regeneration of natural riches and the improvement of the human environment."

According to the state plan for economic and social development for 1978, sewage-purification plants and circulating water systems were put into operation which made possible a reduction of up to 10 percent in the release of untreated sewage along with a reduction in the industrial need for fresh water. Water-protection work is being done in a number of marine and river basins. New technological processes and purification equipment are being introduced which significantly reduce the release of pollutants into the atmosphere.

In 1975, R 1.8 billion of state funds were invested in measures for the preservation of nature and the efficient utilization of natural resources. During the 10th Five-Year Plan (1976-1980), investments for those purposes will amount to R 11 billion, including a planned R 70 million in the Estonian SSR. During the third year of this five-year plan, taking the national economy as a whole, R 2 billion were invested in the same way. Even now long-term environmental protection plans extending up to 1990 are being prepared.

In the future the quality of the environment is going to become a still more important index in national economic planning. This is natural, in view of the fact that the condition of the environment must be an increasingly important consideration in the presence of continuous intensification of large-scale production. Both the well-being of the people and the whole socioeconomic development of the country depend on our ability to deal with nature. By means of systematically planned measures for environmental protection which take into account the latest achievements of science, it is possible to reduce perceptibly the harmful effect which pollutants have on nature. Continuity in planning is assured by a skillful combination of short- and long-term plans, which will at the same time exclude the possibility of obsolescence of the latter.



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WATER PURIFICATION IMPASSE AT BROVARY

Kiev PRAVDA UKRAINY in Russian 29 Jan 79 p 2

[Article by N. Khakhuda, deputy chairman of the Kiyevskaya Oblast Committee of Popular Control and Chairman of the Operative Group for Environmental Protection; A. Lyubinskiy, head of the division of construction of the Committee; and L. Trofimova, nonstaff correspondent of PRAVDA UKRAINY: "Only Six in Line... Construction of Purification Installations lags"]

[Text] The November CPSU Central Committee Plenum has posed the task of taking decisive measures to improve major construction and assure timely launching of new production facilities, particularly priority ones.

Do purification installations fit into the category of especially important objects? Undoubtedly they do. In "Principles of Water Legislation in the USSR and the Union Republics," it is specified that "The launching of new and reconstructed enterprises, shops, plant units, and communal and other objects not outfitted with devices for prevention of contaminated and stagnation of waters, or of the harmful action of waters, is prohibited."

But is this prohibition understood in every quarter? Let's just take Brovary, a growing industrial center near Kiev with a population of 60,000.

"The construction of purification facilities is of enormous importance, not only for future development of the city, but also for its normal existence at the present time," says A. D. Gryazev, first secretary of the Brovary party gorkom with conviction.

As long as purification means are lacking, there can be no launching of the city's plant for aluminum structural units, and the construction of residential buildings and social-domestic objects is correspondingly delayed. It is difficult to estimate the environmental harm resulting from a lack of purification facilities.

The existing purification facilities in Brovary, capable of processing 3,200 cubic meters of water daily, have long since been inadequate to meet the needs of the city. Today they are overloaded by a factor of almost 3.5. Data from chemical-bacteriological analyses of waste water show that every year the effectiveness of the water-purification installations drops off. Every day 9,000 [cubic meters] of unpurified water are released through the Krasilovskiy Canal into the Trubezh River, which in turn conveys them into the Kanevskoye Reservoir. It is understood that growth in a city's industry is accompanied by increase in the amount of unprocessed sewage.

The Ukrainian Ministry of Health in 1976 pointed out the necessity of accelerated construction of water-purification facilities in the Brovary industrial hub.

The construction of industrial hubs has its own special features. One of these is that all component industrial installations of the hub must finance their own purification facilities. Unfortunately, they have not sought for the means of this financing on time, in the case of Brovary. To this day, the Ukrainian ministries of Industrial Construction and Special Construction, and the Kiev gorispolkom, which are building the plant for aluminum structural units, have not produced the total sum necessary for this project.

Obligations of a general client were imposed on the Brovary Plant for Powder Metallurgy. In 1976, although with delay, the general contractor (mobile mechanized column No 15, construction trust No 3, "Kiyevpromstroy" combine) got around to starting work on sewage-purification installations capable of handling 50,000 cubic meters of waste water daily. But the work proceeded neither well nor badly, as the saying goes. The Kiyevskaya Oblast Committee of Popular Control in July of the previous year had studied the causes of an unsatisfactory course in construction work, noting that failure to fulfill the plan was due to a low level of executive discipline. Column No 15 does not assure an operations front to specialized construction and assembly organizations at start-up objects of purification systems. Today about 600,000 rubles have not been advanced. Representatives of construction trust No 3, the "Kiyevpromstroy" combine and column No 15 were present at a conference of the committee. They certified that they would take prompt measures for speeding up the tempo of construction. But the December plan was not fulfilled, so the committee decision was left hanging in air. Why?

To answer this question it was decided to study the course of construction on the spot.

Unfortunately, we were able to see the gloomy picture ourselves. Thirty-five men were working at the site--construction workers of column No 15 and its subcontracting organizations. But not a man from construction

administration No 35, assigned to help by trust No 3, could be seen. Even though administration No 35 had to apply rubles 412,000 out of the planned ruples 692,000 for sewage-purification installations the previous year. Surprising things are taking place. The manager of trust No 3 of "Kiyevpromstroy," V. I. Reznicheck, issues a directive to call in administration No 35 for assistance. But nobody is in a hurry to execute this order. As if that were not enough, the very officials of the trust are not disturbed--all control from their side is lacking.

A Ya. Onufriyenko, chief of column No 15, throws light on the matter:

"Last year our mobile mechanized column had to put in a minimum of nine objects. We aimed at five priority ones--the rayon hospital, the industrial hub polyclinic, the school pond, the residential building, the Plant for Powder Metallurgy. The purification installations were our sixth objective."

Now, who fixed upon such an order of priority? Why, the builders themselves. Was this decision agreed upon by the local organs? By no means. The city sent 77 workers to help column No 15; but how many of these worked on the purification installations? Not a single one. Why? The reason is simple--the purification installations were only number six in priority.

The Kiyevskaya Oblast Committee of Popular Control called the attention of officials of the "Kievpromstroy" trust to their thoughtless attitude toward the need for concentrating the necessary funds and material-technical resources primarily on start-up objects. In this connection, the position of the chief of the combine, V. Kh. Rayenko, is a surprising one. A new year has begun, but problems of the Brovary industrial hub are being decided only extremely slowly.

Following the raid on Brovary, there was an enlarged conference of representatives from the ministries on questions of construction in the industrial hub. It is thought that measures worked out in these talks will help toward a significant acceleration of the launching of purification installations.

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COMPLICATIONS IN POLLUTION CONTROL AT ORSK NICKEL COMBINE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 20 Mar 79 p 2

[Article by A. Kuznetsova, Orsk-Moscow: "Conflict at the Furnace"]

[Text] At the time of our brief, almost transient meeting, Robert Ivanovich Klyushin, first secretary of the Orsk gorkom CPSU, replied as follows to my question regarding environmental-protection work being done in his city:

"Yes, we've had some success, but I must say that we're still faced with a mass of difficulties."

And with that he recommended that attention be turned to the problems facing "Yuzhuralnikel'."

This enterprise, the first-born of the Soviet nickel industry, is well known all over the country. The director is Vladimir Aleksandrovich Durasov, who fell deeply in love with the combine back in the years when, as a student at the Ural'sk Polytechnic Institute, he came here to do practice work as a forger in the smelting shop. He saw for himself how the shaft furnaces spewed out thousands of tons of dust into the atmosphere, while there were a hundred men working on the shop roof in every shift--and the shovels were producing dust which contained nickel. All that was 20 years ago. After finishing up at the institute, the young engineer returned to the plant, where he worked first as a section head in the smelting shop, next as deputy director for economics, and finally as plant director. Reconstruction of the plant began at this point.

Although the country was very seriously in need of nonferrous metals, and reconstruction had to be undertaken side by side with expansion in production, the first money earned (no small sum--rubles 15 million) was literally thrown away in dust. That was Durasov's phrase--"thrown away in dust." Today the gas-purification installations of the smelting shop are quite as important as the furnaces themselves.

The dust has been eliminated, the discharge of polluted water into the Ural River has been completely halted, a revolving water supply has been introduced in hydrometallurgy, and expensive chlorine-control devices have been installed, so that today the wind carries no chlorine into the city. All this has cost the plant collective many years of effort.

Durasov is still a young man hardly over 40. He is a vigorous fellow, businesslike, whose laconic, precise speech is limited to the most important matters. He knows the value of time. Vladimir Aleksandrovich devotes particular attention to the quality of production. Only through automation, he believes, through the introduction of new technological processes, can we find the way to training a new worker-literate who is fully educated and cultured--"The new production produces a new sort of worker, personality and master."

Yes, the association (but the combine itself includes several enterprises) has never failed to meet its plans in the past 10 years: the work is progressing rhythmically. Here we find one of the very highest coefficients of utilization (of basic metallurgical equipment), and the highest labor productivity. Nor is the quality bad--four products have been awarded the State Badge of Quality.

Scale of outlook, breadth of position and the ability to think not only in economic but also in social and moral terms--such are the qualities of the new type of leader which Orsk director Durasov impressed me as being. Quality of production and the fight to preserve the environment are for him--as I myself believe--not merely matters of economics and industry, but also of education.

What a surprise it was when, in a conversation with the chief physician of the city sanitation-epidemiological station, Valentina Nikolayevna Prokhorova, I heard the name of Durasov mentioned among the directors whom she calls uncultured. Prokhorova, it seems, divides all the Orsk leaders into two categories--the "cultured" and the "uncultured." And the "uncultured" are those who are building up the capabilities of their enterprises without showing any concern for the protection of nature.

Prokhorova also has worked in the city for many years, having come here after graduation from medical school. She speaks sharply and categorically--and, with regard to industrial matters with such knowledge, that the listener feels he is talking not merely to a physician but to an engineer as well.

Last year, at her insistence, the plant for synthetic alcohol had to discontinue production, and by the end of the year was replaced by an installation for removing sulfuric acid from the atmosphere. Orsk directors, certainly, do not find it simple to come to terms with Prokhorova, but local nature, at any rate, has found in her a staunch and reliable protector.

Why, then, is Durasov included among Prokhorova's category of "the uncultured"? Prokhorova told a story which is quite characteristic of everything taking place in Orsk these days. At "Yuzhuralnikel'" they were getting ready for a big event--a new smelting furnace would be launched in experimental operation 8 months ahead of schedule. Suddenly, everything came to a stop! An order had come from the sanitation-epidemiological station to hold up all-around testing of the new unit until the questions of the removal of sulfur dioxide from the exhausts, and of establishing a sanitary-protective zone, had been resolved.

"I am attesting facts of air pollution which may have a harmful effect on human health," wrote Prokhorova.

"We find incomprehensible," parried Durasov, "the point of view of the sanitation-epidemiological station, taken in opposition to the progressive policy of enlarging facilities on existing plots."

"The question is one of the health of 246,000 inhabitants of the city," insisted Prokhorova.

"There is no technical solution to the problem of sulfur purification," replied Durasov.

"Then don't start up a new furnace!" concluded Prokhorova.

"But a furnace isn't a diningroom," countered Durasov, "it's not the sort of thing you just seal up!"

This time Prokhorova answered Durasov by imposing a fine. The quarrel of the two city officials now involved the party gorkom and gorispolkom. "Yuzhuralnikel'" appealed to the court against the sanitation-epidemiological station. The trial was converted into an extremely serious discussion of the problems of modern ecology as a whole. The court decided against Durasov in his attempt to protest against the fine.

Technology is technology, and a plan is a plan--that, of course, is the law of life of any industrial production; but, it must represent an optimal combination of the interests of economics and those of ecology, and in our country there is no dearer purpose than the preservation of nature and the health of the people.

There was something here to offend Durasov, but also something for which he might be fined.

That was how Vladimir Aleksandrovich Durasov entered the ranks of the "uncultured," this businesslike, broadminded modern leader, whom it was

simply impossible to think of as a reactionary, and who, in fact, not only has an excellent understanding of the state plan and does much for its fulfillment, but is equally well-disposed toward environmental protection.

Nevertheless, as it turned out, Vladimir Aleksandrovich had not told me the whole truth. Modern chemistry has a method of utilizing sulfurous exhausts with the help of milk of lime. Another matter: the introduction of this method, as communicated to me by Viktor Dmitriy Murashov (chief of the All-Union Industrial Association "Soyuznikel'," USSR Ministry of Light Metallurgy) "would have eaten up all of the profits of the enterprise."

With my next interviewee, this one in Moscow, I was lucky. This man had no need to look up materials for our conversation or make any special preparation. Murashov had himself been transferred to the Ministry from Orsk, where he had been with the nickel combine for 23 years, about half of that time as director. Durasov had begun his career under Murashov, from whom he had later taken over the post of director.

With capability and precise knowledge of the matter, Murashov enumerated for me the very substantial contributions which "Yuzhuralnikel'" had made to environmental protection--coping with dust, chlorine, polluted water and so forth... Viktor Dmitriyevich emphasized that all this had been done gradually, with the support of wise technological decisions which always enabled the enterprise to fulfill its plan and continue to make a profit.

Yes, he told me, there are indeed theoretical ways in which to utilize sulfurous emissions, but he doesn't think it is possible just yet. New plants--for example, in Noril'sk--are even now being constructed on the basis of new processes; while modernization of an old plant, the chief of the association believes, is a prolonged and troublesome process.

"But wait," I say; "just at this moment, when the fight to purify the environment is building up, are you correct in increasing production facilities without introducing purification apparatus"?

"There's no way we can avoid increasing the production of sulfuric acid," Murashov states candidly and unequivocably.

So it is that the conflict I observed in Orsk between combine, city, "Yuzhuralnikel'" director and sanitation-epidemiological station, has now been joined by another combatant, the USSR Ministry of Nonferrous Metallurgy, which has approved the start-up of a new furnace not equipped with purification facilities.

One can understand the businesslike reasonings of Durasov and Murashov. To justify them is pointless--the health of the people is the thing of paramount importance.

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## BRIEFS

UKRAINIAN ECONOMIC PLAN--Kiev, Ukranian SSR--A plan for national economic activity up to the year 2000 has been laid out by scientists of the Ukrainian SSR. This was reported at the 14 March session of the lecturing bureau "Tribune of the Ukrainian Academy of Sciences." Participants of the session were specialists on industrial enterprises, construction and planning organizations; workers of ministries and departments became acquainted with the most recent achievements in the area of the preservation of nature, and with the experience of their introduction into the national economy. Lectures on further improvement in the mechanism of the control of the utilization of nature and on new directions in scientific search in this important area were delivered by the heads of Academy institutes: Academician V. F. Korytov, gas; Academician A. T. Pilipenko, colloid chemistry and the chemistry of water; corresponding member D. M. Grodzinskiy, plant physiology. [Text] [Kiev PRAVDA UKRAINY in Russian 16 Mar 79 p 3] 6277

NOISE POLLUTION CONTROL IN LITHUANIA--Lentavaris, Lithuanian SSR--One of the quietest shops of the Lentvaris Carpet Factory has taken up weaving fabrics. The sounds of production, which formerly did not exceed the sanitary norms, have been reduced thanks to adoption of the program "For every shop acoustic comfort." On the recommendations of scientists of the All-Union Scientific-Research Institute "Thermal Insulation," the walls and ceilings of the working quarters have been covered with sound-absorbent plants, while some of the machinery and equipment has been mounted on shock-absorbers. A significant improvement has been realized from the use of acoustic screens placed in the sound paths. One reliable "trap" has been the polymer mastic proposed by scientists for covering conduits. The effort to control noise is proceeding in all production sections. [Text] [Kiev RABOCHAYA GAZETA in Russian 10 Mar 79 p 1] 6277

FAR NORTH GEOTHERMAL HEATING--Within 15 to 20 years, cities and mines located above the Artic Circle will be heated by artificial geysers--streams of hot water and steam from specially drilled wells. Scientists have developed a model wherein cold water is pumped to depths of one kilometer or lower, producing a mixture of steam and water heated to 150° Celsius. Professor Yu. Dyad'kin of the Leningrad Mining Institute, the head of a problem-solving laboratory, reported that utilization of the earth's inner heat will, according to economists' calculations, cost from one-fifth to one-tenth as much as fuel delivered in Far North conditions. The first experimental system for extracting heat from the earth's depths is being created near Leningrad. [Text] [Moscow PRAVDA in Russian 29 May 1979 p 2]

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PANHELLENIC ECOLOGICAL MOVEMENT ESTABLISHED

Athens I VRADYNI in Greek 6 Jun 79 p 6

[Text] The values of lead, sulfur dioxide, and smoke particulates in the atmosphere of Athens are at levels greatly in excess of internationally accepted limits.

The above findings were emphasized, among other things, at a press conference held yesterday by the newly established Panhellenic Ecological Movement.

More specifically, in a study which was made by the president of the coordinating committee of this movement, the geologist Panagiotis Khristodoulakis, in cooperation with the Athens Observatory, the values of sulfur dioxide and smoke particulates between the years 1969 and 1979 were compared. The levels of sulfur dioxide in the winter of 1969 were: For December--188 micrograms per cubic meter; for January--146; and for February--171. In 1979 the sulfur dioxide levels showed an appreciable increase: In January they were 179 micrograms per cubic meter, and in February they were 191. The values for smoke particulates, which were 63 and 59 respectively in January and February 1969, increased in 1979 to 181 in January and 194 in February.

Dangerous Levels of Lead in Schools

Furthermore, in a study which was made at two schools of Athens (one at Exarkheia and one at Ambelokipoi), it was discovered that the values of sulfur dioxide were: For the first school--190 micrograms per cubic meter, and for the second--170. The content of smoke particulates in the atmosphere around the schools was 1.6 and 1.8 luminous units respectively for the two schools. The concentration of lead in the atmosphere of these two schools for the month of May was 2.0 micrograms per cubic meter and 1.8 micrograms respectively--the latter being the value for the Ambelokipoi school.

Furthermore, the general secretary of the coordinating committee of the Panhellenic Ecological Movement, Dr Theodoros Stavropoulos (of the University of Paris) expounded on the aims of this movement, which are the following:

The combating of pollution and the economic and social causes which produce it, as well as finding the necessary measures to counteract it.

Seeking the immediate taking of the necessary emergency measures on the part of industries (above all, technological improvements) and the State, in order to put an immediate check on the rate of pollution produced.

The reestablishment of ecologically functioning settlements with a balanced development, based on respect for the natural and anthropogenic environment and in harmony with this environment.

Seeking the reforestation of those areas of Greece which have been cleared, and also working to see to it that there is concern for the development of areas of greenery within the cities, by way of adequate watering and tree planting, and more generally seeking to improve the quality of life of the residents of Greece.

Finally, it was stressed that the members of the movement will be entitled to legal reimbursement for measuring done free of charge at sites against which they subsequently lodge a complaint as being sources of pollution.

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